

REMARKS/ARGUMENTS

The instant invention is a method for identifying and quantifying components in an effluent stream from an ammoxidation reactor. These components include reaction products and by-products as well as unreacted feedstocks. The data obtained from monitoring these components can then be used to control the operation of the ammoxidation reaction.

Claims 10-17 remain in the application. Claim 10 has been amended to more clearly distinguish the invention over the cited references.

Claims 10-17 are rejected under 35 U.S.C. 103 as being unpatentable over Ramachandran et al. (U.S. Patent No. 4,868,330) in view of Farone (U.S. Patent No. 5,202,901); Khouri et al. (U.S. Patent No. 5,393,833); and Chang (U.S. Patent No. 5,519,218). Applicants respectfully traverse.

The Examiner relies on the primary reference, Ramachandran et al. as teaching the broad concept of using automated technology to identify and quantify of components in the reactor effluent stream in a process for the production of acrylonitrile. Applicants' assert that Ramachandran et al. does not teach this concept at all.

Ramachandran et al. is directed to a process for the production of acrylonitrile, the thrust of this invention is a process wherein flammable unreacted feedstock gases are recycled to the reactor and wherein explosive or flammable conditions are avoided in the reaction effluent and recycle lines by the presence of a "flame suppressor," typically carbon dioxide. A key requirement of Ramachandran et al. is sufficient "flame suppressor" in the system to avoid flammable conditions.

The Examiner's impressions as to the teachings of Ramachandran et al. seem to be derived from column 4, lines 46-51 of Ramachandran et al. which reads:

“It will likewise be appreciated that it is within the scope of the present invention to utilize conventional equipment to monitor and automatically regulate the flow of gases within the system so that it can be fully automated to run continuously in an efficient manner.”

It seems to be the Examiner's belief that this teaching suggests the identifying and quantifying of components in the reactor stream. This is untrue. This passage taken with the whole of Ramachandran et al. only suggests that gas flow is monitored and regulated. As stated earlier, the gas flow that Ramachandran et al. are most concerned about is unreacted flammable feedstock gases and the presence of sufficient “flame suppressor” gas in order to avoid a flammable/explosive condition. The “system” referred to by Ramachandran et al. is the recycle system having sufficient “flame suppressor” gas. Ramachandran et al. do not suggest identifying and quantifying the reaction products and by products.

In order to more clearly distinguish the claimed invention over the teachings of Ramachandran et al., claim 10 has been amended in order to specifically state which components in the reactor effluent stream are being identified and quantified. Specifically, claim 10, as amended, now specifies that these components comprise acrylonitrile, acetonitrile, propylene, ammonia, hydrogen cyanide, carbon monoxide, carbon dioxide, water, acrolein and acrylic acid. There is no teaching or suggestion by Ramachandran et al. that this list of components be identified and quantified for any purpose.

Further the secondary references above or in combination with Ramachandran et al. do not teach Applicants' claimed invention. All of the ancillary references disclose FTIR spectroscopy or its use in very specific applications. Farone has no teaching or suggestion with respect to ammoxidation processes. Khouri et al. relates to copolymers

and blends thereof and has no teaching or suggestion with respect to ammoxidation processes. Chang et al. relates to a sample holder which may be used with FTIR spectroscopy and also has no teaching or suggestion with respect to ammoxidation processes.

The combination of the teachings of Ramachandran et al. and secondary references do not render Applicants' invention obvious.

SUMMARY

In summary, the primary reference, Ramachandran et al., cannot be construed as suggesting that Applicants' claimed effluent components are identified and quantified. Further, Ramachandran et al. in combination with the secondary references do not suggest Applicants' claimed invention. Applicants' invention as amended is clearly distinguishable over the cited references. Moreover, Applicants' claims are patentable and non-obvious over the cited references. As such, Applicants respectfully request the Examiner to withdraw the instant rejection and forward the application to issuance.

Respectfully submitted,

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